



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/553,190

10/13/2005

Yoshinori Iwabuchi

Q90882

2218

23373 7590 01/27/2010  
SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

BAND, MICHAEL A

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

01/27/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com  
PPROCESSING@SUGHRUE.COM  
USPTO@SUGHRUE.COM

<b>Office Action Summary</b>	<b>Application No.</b> 10/553,190	<b>Applicant(s)</b> IWABUCHI ET AL.	
	<b>Examiner</b> MICHAEL BAND	<b>Art Unit</b> 1795	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 October 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,5-10 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-10 and 13-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 3, 5-10, and 13-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 1 and 10 contain the limitation requiring a first metal component to be elemental metal. There is no support in the Specification stating that the first metal component is an elemental metal.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 5-10, and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al (US Patent No. 6,738,203) in view of Kim et al (USPGPub 2002/0144903) and Ito et al (JP No. 02240292).

Art Unit: 1795

With respect to claims 1, 3, 5-8, 10, and 13-20, Ando et al discloses providing a power limiting material being a composite, porous thin film comprising a metal oxide (i.e. second metal) and a transparent additive (i.e. first metal), where both said metal oxide and said transparent additive are deposited via simultaneous or alternate oblique sputtering (abstract; col. 9, lines 51-64; col. 10, lines 59-67). Ando et al further discloses the second metal comprises an oxide selected from Ti, Zn, Nb, In, Sn, Sb, W, and Ta (col. 2, lines 46-58), while the first metal comprises SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, ZrO<sub>2</sub>, ZrO, and ZnSe (col. 3, lines 39-43). However Ando et al is limited in that while it is disclosed to sputter both the first metal and second metal simultaneously, a specific power supply is not suggested.

Kim et al teaches a focused magnetron sputtering apparatus (abstract), where fig. 1 teaches two oblique sputter sources [19] arranged at predetermined angles and independently powered via pulsed (i.e. altered) DC power supplies [13], a rotated substrate holder [5] controlled via rotation controller [9], reactive gases [17] of oxygen and/or nitrogen (p. 2, para [0021]-[0022]). Fig. 3 depicts the sputter sources [19] as rectangular and being two distinct metal components of a plurality of materials, such as elemental Si and elemental Ta (p. 2, para 0025). Kim et al also teaches that the two distinct metal components may be deposited together (p. 2, para 0022). Kim et al cites the advantages of using this type of sputtering apparatus as allowing for dense, uniform, and smooth multiple layer coatings while maintaining a high throughput (p. 1, para 0008).

It would have been obvious to one of ordinary skill in the art to use the focused magnetron sputtering apparatus as taught by Kim et al to simultaneously deposit the material of Ando et al to gain the advantages of allowing for dense, uniform, and smooth multiple layer coatings while maintaining a high throughput.

However Ando et al is further limited in that it is not suggested to remove portions of the deposited materials.

Ito et al teaches obtaining a porous Al alloy material having improved corrosion resistance and insulating properties, where the surface of said Al alloy is cleaned by alkali etching to remove intermetallic compounds (abstract).

It would have been obvious to use clean the surface Al alloy by alkali etching as taught by Ito et al for the sputtered intermetallic composite material of Ando et al to gain the advantages of superior corrosion resistance and insulating properties.

With respect to claim 9, modified Ando et al further discloses a post-treatment performed including a heat treatment (col. 11, lines 1-9).

### ***Response to Arguments***

#### **112 Rejections**

5. On p. 7, the Applicant argues that the Specification on p. 15, Example 1 teaches support for a first metal portion being an elemental metal.

The Examiner respectfully disagrees. Example 1 of the Applicant's Specification does not teach the generic and broad limitation of 'a first metal component that is elemental metal' directed towards the indicated Markush group. However Example 1

Art Unit: 1795

does contain support for the narrower limitation of a first metal component that is elemental Zn.

103 Rejections

6. On p. 7-10, the Applicant argues that neither Ando et al nor Kim et al teach a first metal portion that is elemental metal.

The Examiner respectfully disagrees. Ando et al teaches a first metal of ZnSe (i.e. elemental alloy) that is sputter deposited (col. col. 3, lines 39-43). In addition, Kim et al also teaches sputter depositing a first metal that is an elemental metal of Si and Ta (col. p. 2, para 0025).

7. All other arguments are directed towards the subject matter above and have been addressed accordingly.

**Conclusion**

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1795

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Band whose telephone number is (571) 272-9815. The examiner can normally be reached on Mon-Fri, 9am-5pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on (571) 272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. B./

Examiner, Art Unit 1795

/Alexa D. Neckel/

Supervisory Patent Examiner, Art Unit 1795